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 VARGA, S.A. Operating Reactors Branch 1

SUBJECT: Clarifies commitments made in response to NUREG-0612,  
 "Control of Heavy Loads at Nuclear Power Plants," re  
 slings, crane insps, installing crane travel limit stops &  
 decreasing dynamic loads.

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## WISCONSIN PUBLIC SERVICE CORPORATION



P.O. Box 1200, Green Bay, Wisconsin 54305

November 14, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. S. A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Varga:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Clarification of Commitments made in Response to NUREG 0612

- References:
- 1) C. W. Giesler to D. G. Eisenhut, Six Month Response to Generic Letter 81-07 NUREG 0612, December 23, 1982
  - 2) C. W. Giesler to D. G. Eisenhut, Nine Month Response to Generic Letter 81-07 NUREG 0612, March 9, 1983
  - 3) C. W. Giesler to S. A. Varga, Response to Open Items in TER on Control of Heavy Loads at KNPP, July 27, 1983

WPSC has submitted three responses to NUREG 0612, Control of Heavy Loads at Nuclear Power Plants, which are referenced above. Numerous commitments were made to achieve compliance with NUREG 0612, with significant impact on plant maintenance. Discussions held between the licensing and maintenance staffs at Kewaunee point out the need to clarify several of the commitments made in response to NUREG 0612. The attachment to this letter clarifies several commitments made in regards to slings, frequent crane inspections, installing crane travel limit stops, and decreasing dynamic loads.

Mr. S. A. Varga  
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Implementation date extensions have been requested for the installation of crane travel limit stops and frequent crane inspections. These extensions have been discussed with our Project Manager.

We hope this clarification will aid your review and eliminate any confusion that may exist.

Sincerely,

A handwritten signature in cursive script, reading "Carl W. Giesler".

Carl W. Giesler  
Vice President - Nuclear Power

GWH/js

Attach.

cc - Mr. Robert Nelson, US NRC

Attachment to Letter from C. W. Giesler to S. A. Varga

Clarification of Commitments Made in Response to NUREG 0612,  
Control of Heavy Loads at Nuclear Power Plants

November 14, 1983

CLARIFICATION OF SLING COMMITMENTS

In reference 3 we made the commitment to discard all slings without a manufacturer's rating tag. Manufacturer's rating tags are required by ANSI B30.9-1971 to be permanently affixed to alloy steel chain slings, metal mesh slings, and synthetic fiber slings. Wire rope slings are not required to have a permanently affixed rating tag as their rated load is determined through the use of tables 3-14 ANSI B30.9-1971, Chapter 9-2.

To clarify our previous commitment regarding slings at Kewaunee:

Those alloy steel chain slings, metal mesh slings and synthetic fiber slings without a manufacturer's rating tag will be retagged by certified personnel or discarded. Wire rope slings will not be discarded on the basis that they do not have a permanently affixed rating tag.

At present, slings used at Kewaunee meet the intent of ANSI B30.9-1971. Crane training at Kewaunee includes a section on 'Rigging the Load'. The rigging portion of crane training stresses the importance of selecting a sling of proper capacity. The rigging training also mentions that a manufacturer's rating is to be affixed to metal mesh, synthetic fiber, and alloy steel chain slings. Additionally, the crane trainees are made aware that rated loads for wire rope slings without rating tags can be determined from tables 3-14 in ANSI B30.9-1971, Chapter 9-2. The combination of providing sling ratings and training on rigging provides assurance that slings are not loaded in excess of their rated capacity. The Maintenance Department at KNPP is presently developing a program in which each sling used at Kewaunee will be inspected on an annual basis. The WPSC safety rules also require inspection of rigging equipment prior to a lift.

Through frequent and periodic inspections and ensuring that the maximum rated load for a given sling is not exceeded there is reasonable assurance that a load handling accident will not result from sling failure.

In the future sling purchase order requirements will include ANSI B30.9-1971.

#### CLARIFICATION OF COMMITMENTS MADE IN REGARDS TO FREQUENT CRANE INSPECTIONS

We have made several commitments in regards to frequent crane inspections.

They are:

- 1) Reference 1, page 16, "A modified version of PMP 57-1 will be written to include the critical sections for the infrequent heavy loads that are lifted over this area (East most 10' of auxiliary building crane bridge travel). This procedure will be written by November 15, 1983. This procedure will include visual inspection of the following crane components:
  - a) Circuit breaker
  - b) Cab and cab controls for operability
  - c) Bridge electrical panel and resistors
  - d) Bridge rails and trolley rails for mechanical damage
  - e) Bridge brake
  - f) Trolley brake
  - g) Main and auxiliary hook brakes
  - h) Festoon cable system for proper operation
  - i) Cable drum and cable
  - j) Main and auxiliary hook

The final requirement of this procedure will be to operate the crane in all modes both from the cab and by radio control."

- 2) Reference 1, page 8, "A modified version of PMP 57-3 will be written and performed monthly (on the turbine building crane). This procedure will include the critical sections of PMP 57-3. The monthly performance of this procedure will reduce the possibility of a load handling accident and allow infrequent heavy loads to be lifted during normal operations. This procedure will be written by November 15, 1983.

This procedure will include visual inspection of the following crane components:

- a) Circuit breaker
- b) Cab and cab controls for operability

- c) Bridge electrical panel and resistors
- d) Bridge rails and trolley rails for mechanical damage
- e) Bridge brakes
- f) Trolley brake
- g) Main and auxiliary hook brakes
- h) Festoon cable system for proper operation
- i) Cable drum and cable
- j) Main and auxiliary hook

The final requirement of this procedure will be to operate the crane in all modes both from the cab and pendant."

3) Reference 2, page 1:

"The turbine building crane, auxiliary building crane, and containment polar crane are tested, maintained, and inspected in a manner that satisfies Chapter 2-2 of ANSI B 30.2-1976."

4) Reference 3, page 3:

"A procedure consistent with ANSI B 30.2-1976, Section 2-2.1.2, Frequent Inspections, will be performed monthly for the remaining 11 months (on the turbine building crane)."

5) Reference 3, page 4:

"...proposed modifications to provide full compliance with ANSI B 30.2-1976, Chapter 2-2."

We feel that compliance with ANSI B 30.2-1976, Chapter 2-2 satisfies the five (5) above mentioned commitments. That is, to satisfy each of the 5 commitments regarding frequent crane inspection we will:

- A. Perform a monthly inspection of the turbine building crane and auxiliary building crane consistent with ANSI B 30.2-1976, Section 2-2.1.1.b.1 except during the month when the annual preventative maintenance procedure (PMP) is performed. The containment polar crane is inspected per its PMP upon the start of the outage, and will be inspected monthly for the duration of the outage consistent with ANSI B 30.2 1976, Section 2-2.1.1.b.1.
  
- B. We will perform a daily inspection of the turbine building crane, auxiliary building crane, and containment polar crane during refueling outages consistent with those items specifically indicated as requiring daily inspection in Section 2-2.1.2 of ANSI B 30.2-1976 with the exception of item 2-2.1.2.a.2, limit switch verification on a shift basis. Limit switch verification will be done on a monthly basis at Kewaunee. This will provide adequate assurance that the limit switches will perform their intended function. A monthly basis is appropriate since the limit switches are redundant and crane usage at Kewaunee is light enough that the limit switches/stops are seldomly challenged. The ANSI guidance was intended for cranes in a production type environment with the possibility of several cranes on one track and limit stop verification on a shift basis is crucial. This is not the case at Kewaunee, and a monthly check of limit stops is more appropriate.

Procedures for frequent crane inspections will be in place by January 1, 1984.

CLARIFICATION OF COMMITMENTS MADE TO INSTALL CRANE TRAVEL LIMIT STOPS

Two commitments were made to install crane travel limit stops. One limit stop would prevent travel of the turbine building crane over the battery rooms while the plant is at or above hot shutdown (reference 3). Another limit stop would prevent travel of the auxiliary building crane over the east most 10' of its possible bridge travel, protecting the RHR heat exchanger (reference 1). The turbine building crane limit stop was to be installed by January 20, 1984. Due to the numerous plant modifications that have been prioritized ahead of this one, the turbine building crane limit stops will not be installed until July 1, 1984. The auxiliary building crane limit stop was to be installed by November 15, 1983. Due to an increase in the scope of this project compared to the conceptual design, the November 15, 1983 date cannot be met. It is tentatively planned to have this limit stop installed by November 15, 1984. We will notify the Commission of any delay in the schedule.

CLARIFICATION OF COMMITMENT TO SLOW DOWN AUXILIARY HOOKS ON THE TURBINE BUILDING CRANE, AUXILIARY BUILDING CRANE, AND CONTAINMENT POLAR CRANE

In reference 3 a commitment was made to "...modify the cranes (turbine building crane, auxiliary building crane, containment polar crane) in order that the auxiliary hooks do not exceed 30 fpm." This commitment was based on dynamic loads calculated as suggested in CMAA-70. Further investigation has shown that it is more appropriate to look at accelerations and decelerations of the cranes since this is the cause of dynamic loading. We have secured our crane manufac-

turer, Whiting Corporation, to provide us with the values for maximum acceleration and deceleration of the auxiliary hook on the turbine building crane, auxiliary building crane, and containment polar crane. Preliminary results of this indicate the following:

<u>Crane</u>	<u>Acceleration At Max Load</u>	<u>Max Load</u>	<u>Dynamic Load as a % of Static Load</u>
Turbine Room	0.25 ft/sec <sup>2</sup>	25 ton	0.8%
Fuel Handling	0.43 ft/sec <sup>2</sup>	10 ton	1.3%
Reactor Polar	0.24 ft/sec <sup>2</sup>	20 ton	0.7%

Whiting Corporation is in the process of determining the deceleration rates, which they have indicated should be similar to the acceleration rates. Since dynamic loads imparted on slings by the auxiliary hoists of the three above mentioned cranes are a small percentage of the static load, <2%; they account for a negligible portion of the overall load thereby satisfying the intent of NUREG 0612.

We have put the modification to reduce the speed of the auxiliary hooks from 40 fpm to 30 fpm on hold and plan on cancelling it if the final results of the acceleration/deceleration study are acceptable. We will inform the NRC of any changes in these plans.